

CLAIMS

1. A method of producing a porous plastic film, the method comprising:
 - producing a stretchable preform from a raw material blend comprising a polymer-containing basic material and an additive,
 - stretching the blank so as to form a film comprising pores, **characterized by**
 - the additive comprising a POS(S) chemical.
2. A method as claimed in claim 1, **characterized** by stretching the preform biaxially.
3. A method as claimed in claim 1 or 2, **characterized** by stretching the preform within a draw ratio range of 2:1 to 8:1.
4. A method as claimed in any one of the preceding claims, **characterized** by the POS(S) being in a solid state at room temperature.
5. A method as claimed in claim 4, **characterized** by blending the POS(S) with the basic material at a temperature lower than the melting temperature of the POS(S).
6. A method as claimed in claim 4, **characterized** by blending the POS(S) with the basic material at a temperature exceeding the melting temperature of the POS(S).
7. A method as claimed in any one of the preceding claims, **characterized** by the POS(S) being in a liquid state at room temperature.
8. A method as claimed in any one of the preceding claims, **characterized** by the POS(S) comprising one or more of the following chemicals: dodecaphenyl-POSS $C_{17}H_{60}O_{18}Si_{12}$, isoctyl-POSS $[Me_3CCH_2CH(Me)CH_2]_nT_n$, wherein n = 8, 10 or 12, octacyclohexyl-POSS $C_{48}H_{88}O_{12}Si_8$, octacyclopentyl-POSS $C_{40}H_{72}O_{12}Si_8$, octaisobutyl-POSS $C_{32}H_{72}O_{12}Si_8$, octamethyl-POSS $C_8H_{24}O_{12}Si_8$, octaphenyl-POSS $C_{48}H_{40}O_{12}Si_8$, octa-TMA-POSS $C_{32}H_{96}O_{20}Si_8 \sim 60 H_2O$, dodecatrifluoropropyl-POSS $C_{36}H_{48}F_{36}O_{18}Si_{12}$, octatrimethylsiloxy-POSS $C_{24}H_{72}O_{20}Si_{16}$, phenetyl-POSS $(PhCH_2CH_2)_nT_n$, wherein n = 8, 10 or 12, phenetylisobutyl-POSS $C_{36}H_{72}O_{12}Si_8$.
9. A method as claimed in any one of the preceding claims, **characterized** by the basic material comprising one or more of the fol-

lowing polymers: polypropylenes, cyclic olefin copolymers, cyclic olefin polymers, polymethylpentene, polyethylene terephthalate, polybutene terephthalate, polyethylene naphthalate, polyetherimide.

10. A method as claimed in any one of the preceding claims, **characterized** by the thickness of the porous plastic film being 5 to 200 μm .

11. A method as claimed in any one of the preceding claims, **characterized** by the amount of POS(S) being 0.1 to 50 percent by weight calculated from the weight of the basic material.

12. A method as claimed in any one of the preceding claims, **characterized** by expanding the pores comprised by the film with gas.

13. A method as claimed in any one of the preceding claims, **characterized** by charging the porous film by directing an electric field over it.

14. A method as claimed in any one of the preceding claims, **characterized** by preparing an electrically conductive element on at least one side of the porous film.

15. A porous plastic film produced from a raw material blend containing a basic material and an additive mixed therewith, a plurality of pores being arranged in the structure of the plastic film, **characterized** in that the additive comprises a POS(S) chemical.

16. A plastic film as claimed in claim 15, **characterized** in that the pores are produced by stretching a preform made from the raw material blend.

17. A plastic film as claimed in claim 16, **characterized** in that the pores are produced by stretching the preform biaxially.

18. A plastic film as claimed in claim 16 or 17, **characterized** in that the draw ratio of the stretching is within a draw ratio range of 2:1 to 8:1.

19. A plastic film as claimed in any one of claims 15 to 18, **characterized** in that the pores are closed pores.

20. A plastic film as claimed in any one of claims 15 to 18, **characterized** in that the POS(S) comprises one or more of the following chemicals: dodecaphenyl-POSS $\text{C}_{17}\text{H}_{60}\text{O}_{18}\text{Si}_{12}$, isoctyl-POSS $[\text{Me}_3\text{CCH}_2\text{CH}(\text{Me})\text{CH}_2]_n\text{T}_n$, wherein $n = 8, 10$ or 12 , octacyclohexyl-POSS $\text{C}_{48}\text{H}_{88}\text{O}_{12}\text{Si}_8$, octacyclopentyl-POSS $\text{C}_{40}\text{H}_{72}\text{O}_{12}\text{Si}_8$, octaisobutyl-POSS $\text{C}_{32}\text{H}_{72}\text{O}_{12}\text{Si}_8$, octamethyl-POSS $\text{C}_8\text{H}_{24}\text{O}_{12}\text{Si}_8$, octaphenyl-POSS $\text{C}_{48}\text{H}_{40}\text{O}_{12}\text{Si}_8$.

octa-TMA-POSS $C_{32}H_{96}O_{20}Si_8 \sim 60$ H₂O, dodecatrifluoropropyl-POSS C₃₆H₄₈F₃₆O₁₈Si₁₂, octatrimethylsiloxy-POSS C₂₄H₇₂O₂₀Si₁₆, phenetyl-POSS (PhCH₂CH₂)_nT_n, wherein n = 8, 10 or 12, phenetylisobutyl-POSS C₃₆H₇₂O₁₂Si₈.

21. A plastic film as claimed in any one of claims 15 to 20, characterized in that the basic material comprises one or more of the following polymers: polypropylenes, cyclic olefin copolymers, cyclic olefin polymers, polymethylpentene, polyethylene terephthalate, polybutene terephthalate, polyethylene naphthalate, polyetherimide.

22. A plastic film as claimed in any one of claims 15 to 21, characterized in that at least one of its surfaces is at least partly coated with an electrically conductive coating.

23. A plastic film as claimed in any one of claims 15 to 22, characterized in that the plastic film is electrically charged.

24. A plastic film as claimed in claim 23, characterized in that it is an electromechanical film and/or an electret film.

25. A plastic film as claimed in claim 24, characterized in that a change in electromechanical energy is arranged to take place through a change in the thickness of the film.

26. A plastic film as claimed in claim 24, characterized in that a change in electromechanical energy is based on variation of the location of the film in an electric field.